Preface

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Version 1.0

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Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

About the Manual

The manual consists of the following:

Chapter 1
Introducing the Motherboard
Describes features of the motherboard.
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Chapter 2
Installing the Motherboard
Describes installation of motherboard components.
Go to page 7

Chapter 3
Using BIOS
Provides information on using the BIOS Setup Utility.
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Using the Motherboard Software
Describes the motherboard software
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Setting Up AMD SB850 RAID Configuration
Provides information about SATA RAID Setup
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Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the A890GXM-A motherboard. This motherboard is a high performance, enhanced function motherboard that supports socket for AMD Phenom™ II/Athlon™ II/Sempron™ processors (socket AM3) for high-end business or personal desktop markets.

The motherboard incorporates the AMD 890GX Northbridge (NB) and SB850 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport™ 3.0 interface. The memory controller supports DDR3 memory DIMM frequencies of 1600 (OC)/1333/1066/800*1. It supports four DDR3 slots with maximum memory size of 32 GB*2. Two PCI Express x16 slot, intended for Graphics Interface, are fully compliant to the PCI Express Gen2 (version 2.0). In addition, two PCI Express x1 slots are supported and one PCI Express x4 slot which is PCI v2.0 compliant is supported.

The SB850 Southbridge supports one PCI slot which is PCI v2.3 compliant. It integrates USB 2.0 interface, supporting up to fourteen functional ports (six USB ports and four USB 2.0 headers support additional eight USB ports). The Southbridge integrates a Serial ATA host controller, supporting five SATA ports with maximum transfer rate up to 6 Gb/s each.

There is an advanced full set of I/O ports in the rear panel, including one VGA port, one DVI port, one ESATA port, one HDMI port, one Display port, six USB ports, two LAN ports, one optical SPDIFO port and audio jacks for microphone, line-in and 8-ch line-out.

**1. Due to the limitation of AMD CPU spec, please refer to Memory QVL for more information.*

**2. Due to the DRAM maximum size (2 GB per dimm) at present, the memory maximum size we have tested is 8 GB per dimm.*

Feature

Processor

This motherboard uses a socket AM3 that carries the following features:

- Accommodates AMD Phenom™ II/Athlon™ II/Sempron™ processors (socket AM3)
- Supports HyperTransport™ (HT) 3.0 interface speeds

HyperTransport™ Technology is a point-to-point link between two devices, it enables integrated circuits to exchange information at much higher speeds than currently available interconnect technologies.

Chipset

The AMD 890GX Northbridge (NB) and SB850 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

AMD 890GX (NB)

- One x4 A-Link Express III interface for connection to an AMD Southbridge. The A-Link Express III is a proprietary interface developed by AMD basing on the PCI Express technology, with additional Northbridge-Southbridge messaging functionalities. It supports the PCIe Gen 2 transfer rate of 5 GT/s, and is backward compatible with the A-Link Express II interface.
- Supports two x16 PCI-Express Gen2 graphics link
- Fully supports ACPI states S1, S3, S4 and S5
- Supports ATI HyperMemory*.

Note: Includes dedicated and shared memory. The amount of HyperMemory available is determined by various factors. For details, please consult your AMD CSS representative.

- Supports 16-bit up/down HyperTransport (HT) 3.0 interface up to 4.8 GT/s.

SB850 (SB)

- Compliant with PCI 2.3 specification at 33 MHz
- Two-lane PCI Express® (PCIe®) 2.0 interface, supporting up to two general purpose devices. Supported configurations include: § 1x2 § 2x1
- Supports five Serial ATA devices which speeds up to 6 Gb/s
- Integrated USB 2.0 Host Controller supporting up to fourteen USB 2.0 ports
- Supports integrated RAID 0, RAID 1, RAID 5, and RAID 10 functionality across all 5 ports (RAID 10 requires use of 4 or more SATA ports, and RAID 5 requires use of 3 or more SATA ports)

Memory

- Supports DDR3 1600 (OC)/1333/1066/800 DDR3 SDRAM with Dual-channel architecture
- Accommodates four unbuffered DIMMs
- Up to 8 GB per DIMM with maximum memory size up to 32 GB

Audio

- 7.1+2 Channel High Definition Audio Codec
- Meets Microsoft WLP3.x (Windows Logo Program) audio requirements
- All DACs supports 44.1k/48k/96k/192kHz sample rate
- Software selectable 2.5V/3.2V/4.0V VREFOUT
- Direct Sound 3D. compatible
- Power Support: Digital: 3.3V; Analog: 5.0V

Onboard LAN

- Supports PCI Express™ 2.0
- Integrated 10/100/1000 transceiver
- Wake-on-LAN and remote wake-up support

Expansion Options

The motherboard comes with the following expansion options:

- Two PCI Express x16 slots for Graphics Interface
- One PCI Express x4 slot(the PCI-e x16 slot with blue color)
- Two PCI Express x1 slots
- One 32-bit PCI v2.3 compliant slot
- Five 7-pin SATA connectors

This motherboard supports Ultra DMA bus mastering with transfer rates of 133/100/66/33 MB/s.

Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- One VGA port
- One DVI port
- One ESATA port
- One HDMI port
- One Display port
- Six USB ports
- Two LAN ports
- One optical SPDIFO port
- Audio jacks for microphone, line-in and 8-ch line-out

BIOS Firmware

The motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.

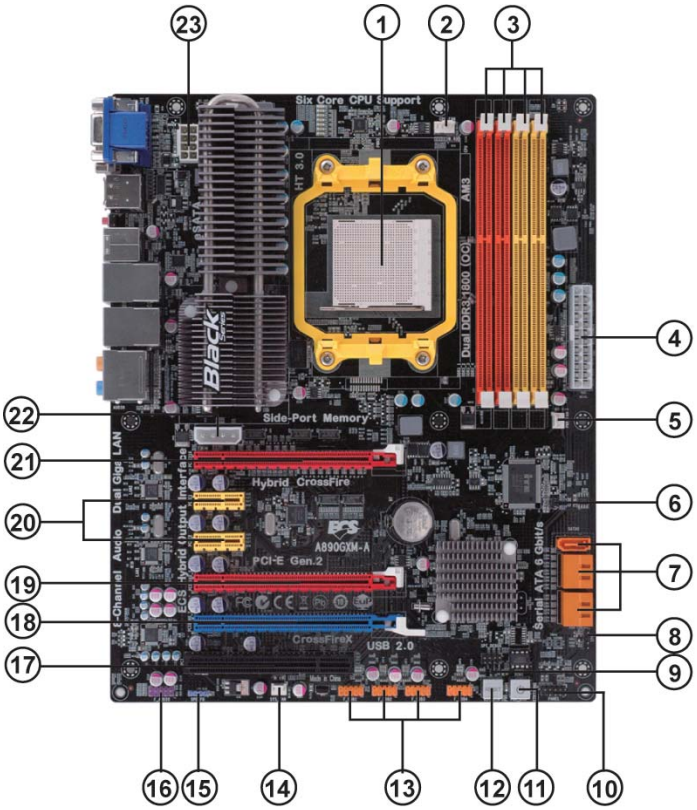
1. Some hardware specifications and software items are subject to change without prior notice.

2. Due to chipset limitation, we recommend that motherboard be operated in the ambiance between 0 and 50°C.

Specifications

CPU	•	AMD Phenom™ II/Athlon™ II/Sempron™ processors (socket AM3)
	•	Supports “Hyper-Threading” technology CPU
Chipset	•	NB: AMD 890GX SB: SB850
Memory	•	Dual-channel DDR3 memory architecture
	•	4 x 240-pin DDR3 DIMM sockets support up to 32 GB
	•	Supports DDR3 1600 (OC)/1333/1066/800 DDR3 SDRAM
Expansion Slots	•	2 x PCI Express Gen2 x16 slots
	•	1 x PCI Express x4 slot(the blue PCI Express x16 is bandwidth of x4)
	•	2 x PCI Express x1 slots
	•	1 x PCI slot
Storage	•	Supported by AMD SB850 Express Chipset
	•	5 x Serial ATA 6.0 Gb/s Host Controllers
	•	Supports RAID 0, 1, 5 and 10
Audio	•	ALC892 8-Channel
LAN	•	Dual Realtek 8111DL PCIE GigaLAN Controller
Rear Panel I/O	•	1 x VGA port
	•	1 x DVI port
	•	1 x ESATA port
	•	1 x HDMI port
	•	1 x Display port
	•	6 x USB ports
	•	2 x RJ45 LAN connectors
	•	1 x Audio port (Line in, microphone in, line out, and optical SPDIF out)
Internal I/O Connectors & Headers	•	1 x 24-pin ATX Power Supply connector & ATX4P connector & ATX8P connector.
	•	5 x Serial ATA connectors
	•	4 x USB 2.0 headers support additional 8 USB ports
	•	1 x Front panel header
	•	1 x Chassis Intrusion Detect header
	•	1 x SPDIF out header
	•	1 x Front panel audio header
	•	1 x Speaker header
	•	1 x Reset button
	•	1 x Power button
	•	CPU_FAN/SYS_FAN/PWR_FAN connectors
System BIOS	•	AMI BIOS with 8Mb SPI ROM
	•	Supports Plug and Play 1.0A, APM 1.2, Multi Boot, DMI
	•	Supports ACPI revision 1.0 specification
Form Factor	•	ATX Size, 305mm x 244mm

Motherboard Components



The above image is for reference only; please take the actual motherboard for detailed parts.

Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	Socket for AMD Phenom™ II processor (socket AM3)
2. CPU_FAN	CPU cooling fan connector
3. DDR3_1~4	240-pin DDR3 SDRAM slots
4. ATX_POWER	Standard 24-pin ATX power connector
5. PWR_FAN	Power cooling fan connector
6. CASE	CASE open header
7. SATA1~5	Serial ATA connectors
8. SPK	Speaker header
9. SPI_DEBUG	SPI debug header-for factory use only
10. F_PANEL	Front panel switch/LED header
11. PWR_BTN	Power on button
12. RST_BTN	Reset button
13. F_USB1~4	Front Panel USB headers
14. SYS_FAN	System cooling fan connector
15. SPDIFO	SPDIF out header
16. F_AUDIO	Front panel audio header
17. PCI	32-bit add-on card slot
18. PCIE16X_T	PCI Express x4 slot
19. PCIE16X_S	PCI Express x16 slot for graphics interface
20. PCIE1~2	PCI Express x1 slots
21. PCIEX16	PCI Express x16 slot for graphics interface
22. ATX4P	4-pin ATX power connector
23. ATX12V	8-pin +12V power connector

This concludes Chapter 1. The next chapter explains how to install the motherboard.

Chapter 2
Installing the Motherboard

Safety Precautions

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the ATX system case. Some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Make sure that your case has sufficient power and space for all drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

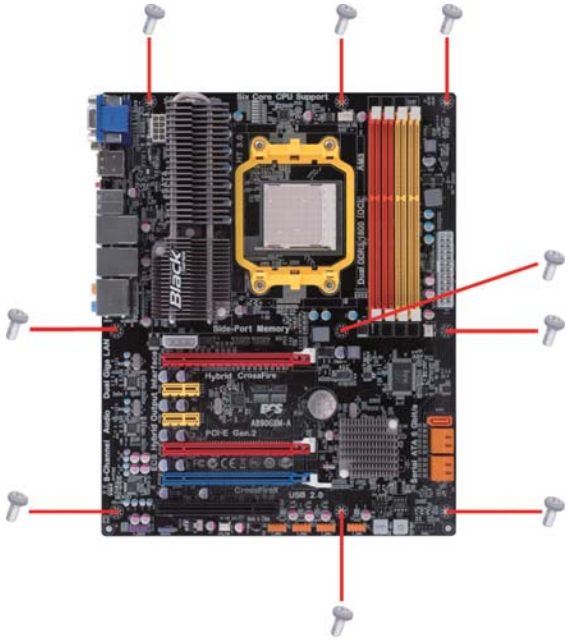
This motherboard carries an ATX form factor of 305 X 244 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



Do not over-tighten the screws as this can stress the motherboard.

Installing Hardware

Installing the Processor

Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.

On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.

Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.

Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.

Warning:

1. Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.

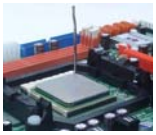
2. Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.

This motherboard has a socket AM3 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

The following illustration shows CPU installation components.

1 Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.
2 Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.
3 Press the lever down and apply thermal grease on top of the CPU.
4 Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.
5 Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.



To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing Memory Modules

This motherboard accommodates four memory modules. It can support four 240-pin DDR3 1600 (OC)/1333/1066/800. The total memory capacity is 32 GB.

DDR3 SDRAM memory module table

Memory module	Memory Bus
DDR3 800	***400 MHz***
DDR3 1066	***533 MHz***
DDR3 1333	***667 MHz***
DDR3 1600	***800 MHz***

You must install at least one module in any of the four slots. Each module can be installed with 8 GB of memory.

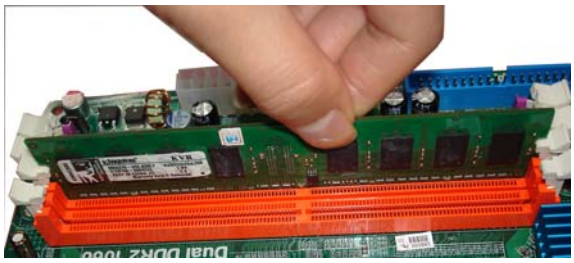
Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

***** *1. Due to the limitation of AMD CPU spec, please refer to Memory QVL for more information.*

Installation Procedure

Refer to the following to install the memory modules.

1 This motherboard supports unbuffered DDR3 SDRAM only.
2 Push the latches on each side of the DIMM slot down.
3 Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
4 Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
5 Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
6 Install any remaining DIMM modules.



** For reference only*

For best performance and compatibility, we recommend that users install DIMMs in the sequence of DIMM3, DIMM4, DIMM1 and DIMM2.

Table A: DDR3 (memory module) QVL (Qualified Vendor List)

The following DDR3 memory modules have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Module Name
DDR3 1066	1 GB	Hynix	HMT112U6AFP8C-G7N0 AA
		Kingston	KVR1066D3N7
		Micron	MT8JTF12864AZ-1G1F1
		Ramaxel	RMR1810NA48E7F-1066-LF
	2 GB	Elixir	M2Y2G64CB8HC9N-BE
			M2Y2G64CB8HC5N-BE
			M2Y2G64CB8HA9N-BE 0922.TW
		Kingston	KVR1066D3N7/4G 9905403-028.A00LF
		Micron	MT16JTF25664AZ-1G1F1
			MT16JTF25664AY-1G1D1
		Samsung	M378B5673DZ1-CF8 0842
DDR3 1333	1 GB	A-data	AD3U1333B1G9-B
		Apacer	78.01GC6.9L0
		Elixir	EBJ10UE8BDF0-DJ-F
		Hynix	HMT112U6AFP8C-H9N0 AA
		KingMax	FLFD45F-B8KG9 NAES
			FLFD45F-B8KG9 NAUS
		Micron	MT8JTF12864AY-1G4D1
			MT8JTF12864AZ-1G4F1
		PSC	AL7F8G73D-DG1
		Ramaxel	RMR1810E7F-1333
			RMR1810KD48E7F-1333
		Samsung	M378B2873EH1-CH9
		Silicon Power	SP001GBLTU133S01

Table B: DDR3 (memory module) QVL (Qualified Vendor List)

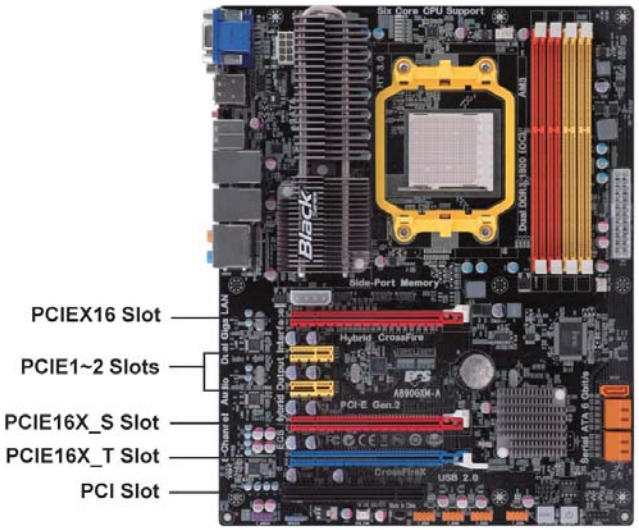
The following DDR3 memory modules have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Module Name
DDR3 1333	2 GB	A-data	AD3U1333B2G9-B
		Apacer	78.A1GC6.9L1
		Elixir	M2F2G64CB8HA4N-CG 0903.TW
			M2Y2G64CB8HC9N-CG
			EBJ21UE8BDF0-DJ-F/J1108BDSE-DJ-F
			M2Y2G64CB8HA9N-CG 0920.TW
		G.SKILL	F3-10666CL9D-4GBRL
			F3-10666CL8D-4GBECO
			F3-10666CL9D-4GBNQ
		Hynix	HMT125U6AFP8C-H9N0 AA
		KingMax	FLFE85F-B8KG9 NEES
			FLFE85F-B8KG9 NEUS
		Kingston	KVR1333D3N9/2G 9905403-011.A03LF
		Micron	MT16JTF25664AY-1G4D1
		Nanya	NT2GC64B8HAONF-CG 0917.TW
		PSC	AL8F8G73D-DG1
		Ramaxel	RMR186EA48D8F-1333
		Samsung	M378B5673EH1-CH9
		Silicon Power	SP002GBLTU133S01
	4 GB	Kingston	KVR1333D3N9
DDR3 1600	1 GB	KingMax	FLGD45F-B8KG9 NEES
	2 GB	A-data	Fast Dragon
		Elixir	M2Y2G64CB8HA9N-DG 0928.TWr
		G.SKILL	F3-12800CL9D-4GBNQ
			F3-12800CL9D-4GBECO
			F3-12800CL7D-4GBECO
			F3-12800CL9D-4GBRL
		KingMax	FLGE85F-B8KG9 NEES
DDR3 1800	1 GB	Kingston	KHX1800C9D3K3/3GX 9905402-046.A01LF
DDR3 2133	1 GB	Kingston	KHX2133C9D3T1K2
DDR3 2200	2 GB	G.SKILL	F3-17600CL7D-4GBPIS

Expansion Slots

Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



PCIE1~2 Slots

The PCI Express x1 slots are fully compliant to the PCI Express Gen2 (version 2.0).

PCIEX16/ PCIE16X_S Slots

The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Gen2 (version 2.0).

PCIE16X_T Slot (PCIEX4 Slot)

The PCI Express x4 slot is fully compliant to the PCI Express Base Specification revision 2.0.

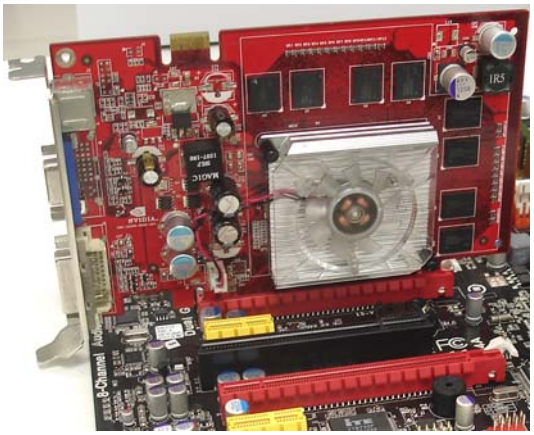
PCI Slot

This motherboard is equipped with three standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.



** For reference only*

Notice to User:

1. *When use some add-on cards on this motherboard, please install the required driver and software first.*
2. *Graphics outputs matrix as follows:*
   Ex: using DP, user can use HDMI or DVI or D-Sub at the same time.

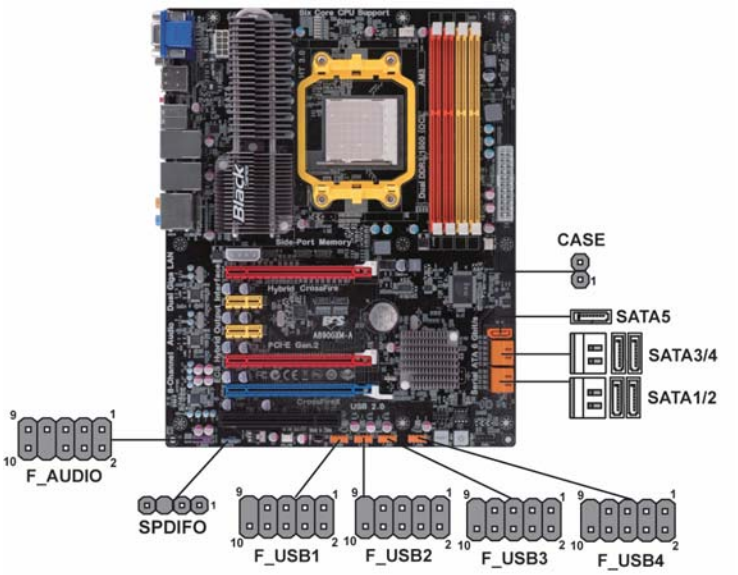
	DP	HDMI	DVI	D-Sub
DP		O	O	O
HDMI	O		X	O
DVI	O	X		O
D-Sub	O	O	O	

Note:

1. *Only two graphics outputs (DP,HDMI,DVI,D-Sub) can be displayed at the same time*
2. *DVI and HDMI share the same signal, so they can not be used at the same time.*
3. *Display port and the first PCI E X16 slot (the closest to CPU) share the same signal, so they can not be used at the same time.*
4. *The first PCI E X16 slot (the closest to CPU) only supports PCI E X16 Cards.*

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



SATA1~5: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (6.0 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground	-	-

SPDIFO: SPDIF out header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

Pin	Signal Name	Function
1	SPDIF	SPDIF digital output
2	+5VA	5V analog Power
3	Key	No pin
4	GND	Ground

F_USB1~4: Front Panel USB headers

The motherboard has six USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal

Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

F_AUDIO: Front Panel Audio header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name	Pin	Signal Name
1	PORT 1L	2	AUD_GND
3	PORT 1R	4	PRESENCE#
5	PORT 2R	6	SENSE1_RETURN
7	SENSE_SEND	8	KEY
9	PORT 2L	10	SENSE2_RETURN

CASE: Chassis Intrusion Detect Header

This detects if the chassis cover has been removed. This function needs a chassis equipped with instrusion detection switch and needs to be enabled in BIOS.

Pin 1-2	Function
Short	Chassis cover is removed
Open	Chassis cover is closed

Installing a SATA Hard Drive

This section describes how to install a SATA hard drive.

About SATA Connectors

Your motherboard features five SATA connectors supporting a total of four drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

SATA cable (optional)

SATA power cable (optional)

Refer to the illustration below for proper installation:

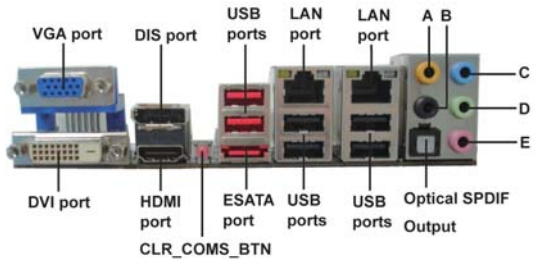
1 Attach either cable end to the connector on the motherboard.
2 Attach the other cable end to the SATA hard drive.
3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.

for reference only

This motherboard supports the "Hot-Plug" function.

Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:



VGA Port Connect your monitor to the VGA port.

DVI Port Use the DVI port to connect the monitor.

DIS Port(Dispaly Port) Use the Display port to connect the monitor.

HDMI Port Connect the HDMI port to the HDMI devices.

CLR_COMS_BTN Use the CLR_CMOS button to clear CMOS.

USB Ports Use the USB ports to connect USB devices.

LAN Port Connect an RJ-45 jack to the LAN port to connect your computer to the network.

ESATA Port Use this port to connect to external SATA boxes or Serial ATA port multipliers.

Before connecting the eSATA cables, make sure to turn off the power of the external enclosure.

Optical SPDIF Output This jack connects to external optical digital audio output devices.

Audio Ports Use the audio jacks to connect audio devices. The C port is for stereo line-in signal, while the E port is for microphone in signal. This motherboard supports audio devices that correspond to the A, B and D port respectively. In addition, all of the 3 ports, B, and D provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.

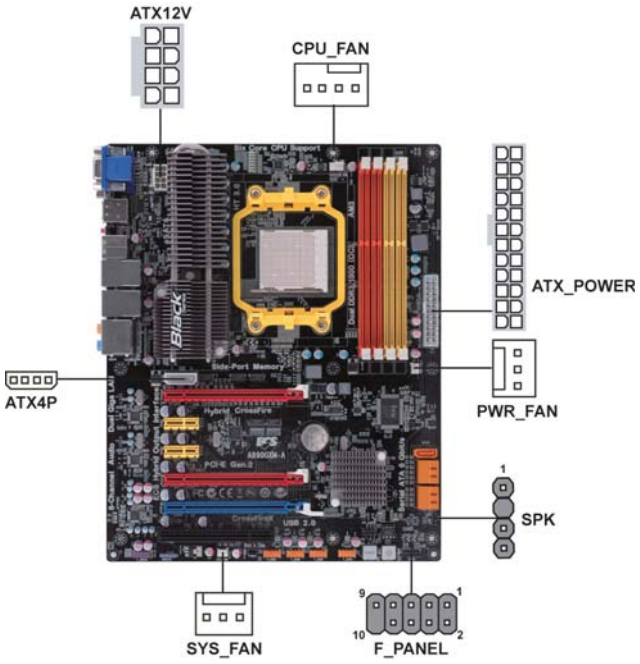
A: Center & Woofer	D: Front Out
B: Back Surround	E: Mic_in Rear
C: Line-in	-

The above port definition can be changed to audio input or audio output by changing the driver utility setting.

Connecting Case Components

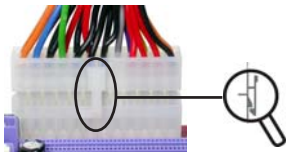
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

1. Connect the CPU cooling fan cable to **CPU_FAN**.
2. Connect the standard power supply connector to **ATX_POWER**.
3. Connect the case speaker cable to **SPK**.
4. Connect the case switches and indicator LEDs to the **PANEL**.
5. Connect the system cooling fan connector to **SYS_FAN**.
6. Connect the auxiliary case power supply connector to **ATX12V**.
7. Connect the power cooling fan connector to **PWR_FAN**.
8. Connect the the auxiliary power connector for graphics interface to **ATX4P**.



Connecting 24-pin power cable

Users please note that the 24-pin power cable can be connected to the ATX_POWER connector.

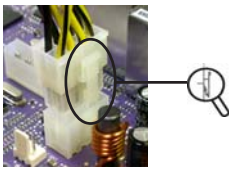


24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX_POWER match perfectly.

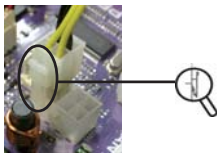
Connecting 8/4-pin power cable

Users please note that the 8-pin and 4-pin power cables can both be connected to the ATX12V connector.



8-pin power cable

When installing 8-pin power cable, the latches of power cable and the ATX12V connector match perfectly.



4-pin power cable

When installing 4-pin power cable, the latch falls on the left side of the ATX12V connector.

CPU_FAN: Cooling FAN Power Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	CPU FAN control

Users please note that the fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max.) at +12V.

ATX_POWER: ATX 24-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	COM
4	+5V	16	PS_ON
5	Ground	17	COM
6	+5V	18	COM
7	Ground	19	COM
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM

SYS_FAN: FAN Power Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

SPK: Internal speaker

Pin	Signal Name
1	VCC
2	Key
3	NC
4	Signal

ATX12V: ATX 12V Power Connector

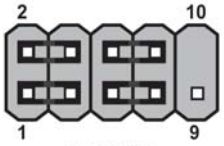
Pin	Signal Name	Pin	Signal Name
1	Ground	5	+12V
2	Ground	6	+12V
3	Ground	7	+12V
4	Ground	8	+12V

ATX4P: Auxliary Power Connector for Graphics Interface.

Pin	Signal Name
1	NC
2	GND
3	GND
4	+12V

Front Panel Header

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:



Pin	Signal	Function	Pin	Signal	Function
1	HD_LED_P	Hard disk LED (+)	2	FP PWR/SLP	*MSG LED (+)
3	HD_LED_N	Hard disk LED (-)	4	FP PWR/SLP	*MSG LED (-)
5	RST_SW_N	Reset Switch (-)	6	PWR_SW_P	Power Switch (+)
7	RST_SW_P	Reset Switch (+)	8	PWR_SW_N	Power Switch (-)
9	RSVD	Reserved	10	Key	No pin

** MSG LED (dual color or single color)*

Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power/Sleep/Message waiting LED

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

Reset Switch

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

This concludes Chapter 2. The next chapter covers the BIOS.

Memo

Chapter 3

Using BIOS

About the Setup Utility

The computer uses the latest "American Megatrends Inc. " BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

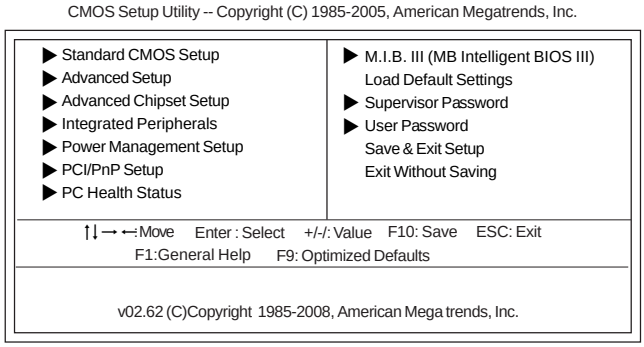
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

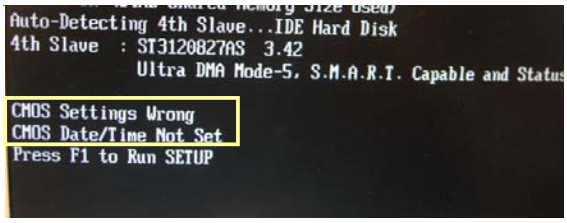
Press the delete key to access the BIOS Setup Utility.

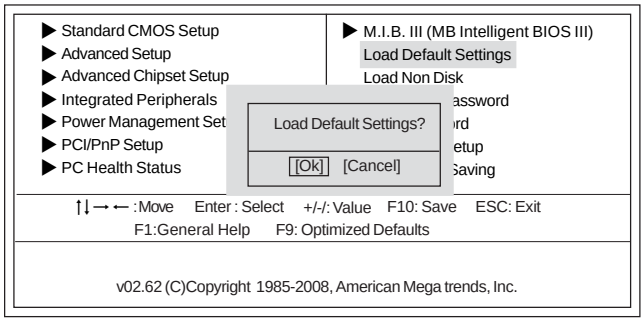

CMOS Setup Utility -- Copyright (C) 1985-2005, American Megatrends, Inc.
▶ Standard CMOS Setup
▶ Advanced Setup
▶ Advanced Chipset Setup
▶ Integrated Peripherals
▶ Power Management Setup
▶ PCI/PnP Setup
▶ PC Health Status
▶ M.I.B. III (MB Intelligent BIOS III)
Load Default Settings
▶ Supervisor Password
▶ User Password
Save & Exit Setup
Exit Without Saving
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults
v02.62 (C)Copyright 1985-2008, American Mega trends, Inc.

Resetting the Default CMOS Values

When powering on for the first time, the POST screen may show a "CMOS Settings Wrong" message. This standard message will appear following a clear CMOS data at factory by the manufacturer. You simply need to Load Default Settings to reset the default CMOS values.

Note: Changes to system hardware such as different CPU, memories, etc. may also trigger this message.


Auto-Detecting 4th Slave...IDE Hard Disk
4th Slave : ST3120827AS 3.42
Ultra DMA Mode-5, S.M.A.R.T. Capable and Status
CMOS Settings Wrong
CMOS Date/Time Not Set
Press F1 to Run SETUP


CMOS Setup Utility -- Copyright (C) 1985-2005, American Megatrends, Inc.
▶ Standard CMOS Setup
▶ Advanced Setup
▶ Advanced Chipset Setup
▶ Integrated Peripherals
▶ Power Management Set
▶ PCI/PnP Setup
▶ PC Health Status
▶ M.I.B. III (MB Intelligent BIOS III)
Load Default Settings
Load Non Disk
Load Default Settings?
[Ok] [Cancel]
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults
v02.62 (C)Copyright 1985-2008, American Mega trends, Inc.

Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

The default BIOS setting for this motherboard applies for most conditions with optimum performance. It is not suggested to change the default values in the BIOS setup and the manufacture takes no responsibility to any damage caused by changing the BIOS settings.

BIOS Navigation Keys

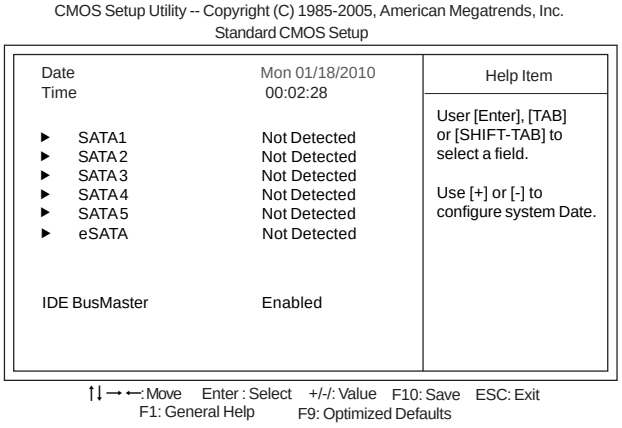
The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Exits the current menu
↑↓<->	Scrolls through the items on a menu
+/-/	Modifies the selected field's values
Enter	Select
F9	Load a default optimized setting
F10	Saves the current configuration and exits setup
F1	Displays a screen that describes all key functions

For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.

Standard CMOS Setup

This option displays basic information about your system.

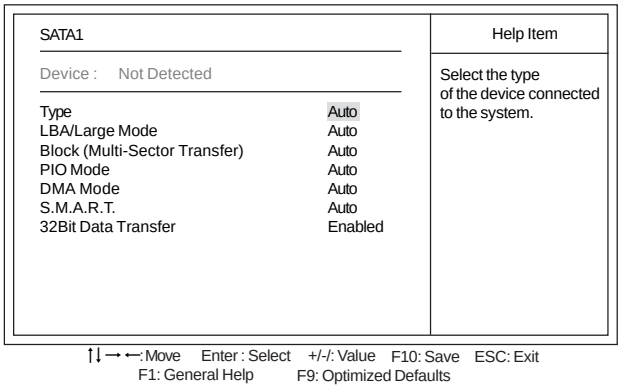

CMOS Setup Utility -- Copyright (C) 1985-2005, American Megatrends, Inc.
Standard CMOS Setup
Date Mon 01/18/2010
Time 00:02:28
SATA1 Not Detected
SATA 2 Not Detected
SATA 3 Not Detected
SATA 4 Not Detected
SATA 5 Not Detected
eSATA Not Detected
IDE BusMaster Enabled
Help Item
User [Enter], [TAB] or [SHIFT-TAB] to select a field.
Use [+] or [-] to configure system Date.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1: General Help F9: Optimized Defaults

Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

►SATA1~5, eSATA

This motherboard supports five SATA channels and each channel allows one SATA device to be installed.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
SATA1
SATA1
Device : Not Detected
Type Auto
LBA/Large Mode Auto
Block (Multi-Sector Transfer) Auto
PIO Mode Auto
DMA Mode Auto
S.M.A.R.T. Auto
32Bit Data Transfer Enabled
Help Item
Select the type of the device connected to the system.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1: General Help F9: Optimized Defaults

Type (Auto)

Use this item to configure the type of the IDE device that you specify. If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

LBA/Large Mode (Auto)

Use this item to set the LBA/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

Block (Multi-Sector Transfer) (Auto)

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

PIO Mode (Auto)

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

DMA Mode (Auto)

DMA capability allows users to improve the transfer-speed and data-integrity for compatible IDE devices.

S.M.A.R.T. (Auto)

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

32Bit Data Transfer (Enabled)

Use this item to enable or disable 32Bit Data Transfer.

Press <Esc> to return to the Standard CMOS Setup page.

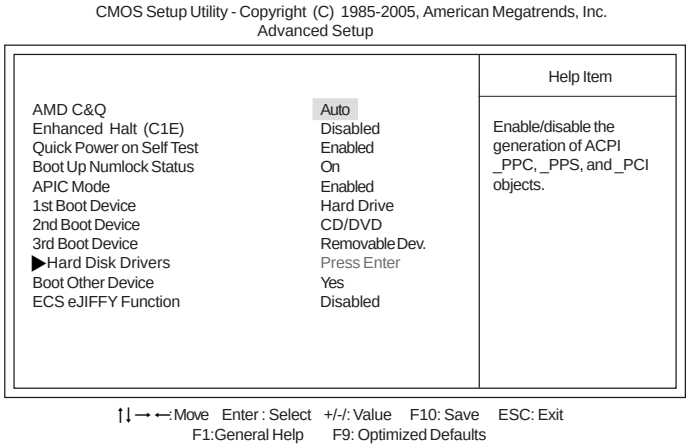
IDE BusMaster (Enabled)

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Press <Esc> to return to the main menu setting page.

Advanced Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



AMD C&Q (Auto)

This item helps the system to lower the frequency when CPU idles. When the frequency decreases, the temperature will drop automatically as well.

Enhanced Halt (C1E) (Disabed)

This item enables or disables enhanced halt.

Quick Power on Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

Boot Up Numlock Status (On)

This item defines if the keyboard Num Lock key is active when your system is started.

APIC Mode (Enabled)

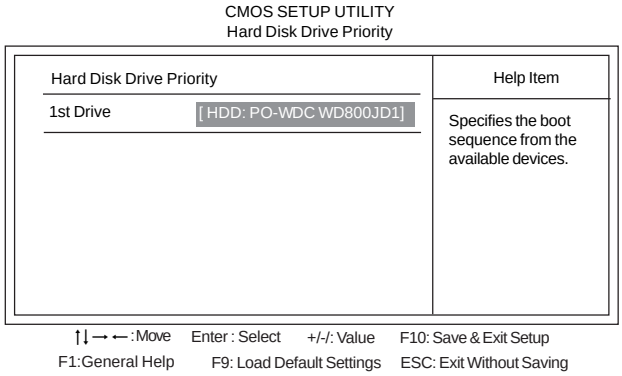
This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

1st/2nd3rd Boot Device (Hard Drive/CD/DVD/Removable Dev.)

Use this item to determine the device order the computer used to look for an operating system to load at start-up time. The devices showed here will be different depending on the exact devices installed on your motherboard.

► **Hard Disk Drive Priority (Press Enter)**

Scroll to this item and press < Enter > to view the following screen:



Press <Esc> to return to the Advanecd BIOS Features page.

Boot Other Device (Yes)

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second and Third boot devices.

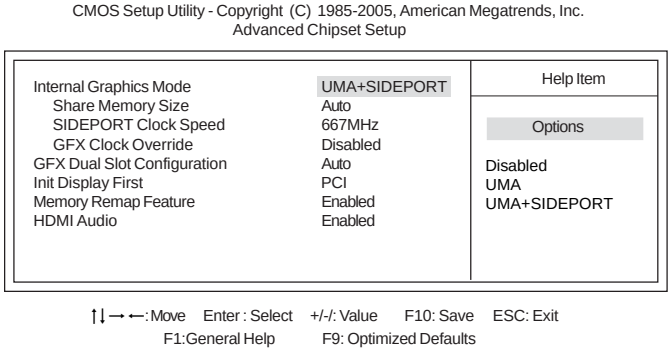
ECS eJIFFY Function (Disabled)

Use this item to enable or disable the ECS eJIFFY Function. eJIFFY is ECS unique software program for the quick access to the internet without entering O.S. Please refer to Chapter 6 to know more about eJIFFY.

Press <Esc> to return to the main menu setting page.

Advanced Chipset Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



Internal Graphics Mode (UMA+SIDEPORT)

Use this item to choose the onboard VGA mode. You can select [Disabled] to disablethe onboard VGA, [UMA] to use the system memory.

Warning: If Disabled Internal Graphics Mode, please Loading default toEnable it.

Share Memory Size (Auto)

This item lets you allocate a portion of the main memory for the onboard VGA display application.

SIDEPORT Clock Speed (667MHz)

This item allows you to set sideport clock speed.

GFX Clock Override (Disabled)

Use this item to enable or disable GFX Clock Override.

GFX Dual Slot Configuration (Auto)

Use this item to enable or disable GFX Dual Slot Configuration.

Init Display First (PCI)

Use this item to select which graphics controller to use as the primary boot devices.

Memory Remap Feature (Enabled)

This item allows users to enable or disable memory hole remapping.

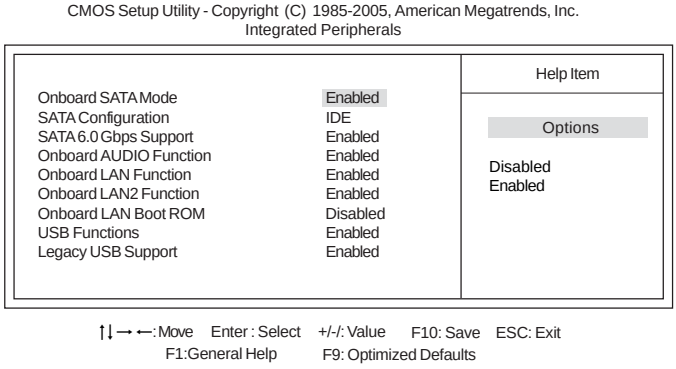
HDMI Audio (Enabled)

This item is used to enable or disable the onboard audio chip.

Press <Esc> to return to the main menu setting page.

Integrated Peripherals

This page sets up some parameters for peripheral devices connected to the system.



Onboard SATA Mode (Enabled)

Use this item to enable or disable the onboard SATA mode.

SATA Configuration (IDE)

Use this item to show the Serial ATA Configuration options: Disabled, Compatible, Enhanced.

Onboard AUDIO Function (Enabled)

Use this item to enable or disable the onboard Audio function.

Onboard LAN Function (Enabled)

Use this item to enable or disable the onboard LAN function.

Onboard LAN2 Function (Enabled)

Use this item to enable or disable the onboard LAN2 function.

Onboard LAN Boot ROM (Disabled)

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

USB Functions (Enabled)

Use this item to enable or disable the USB function.

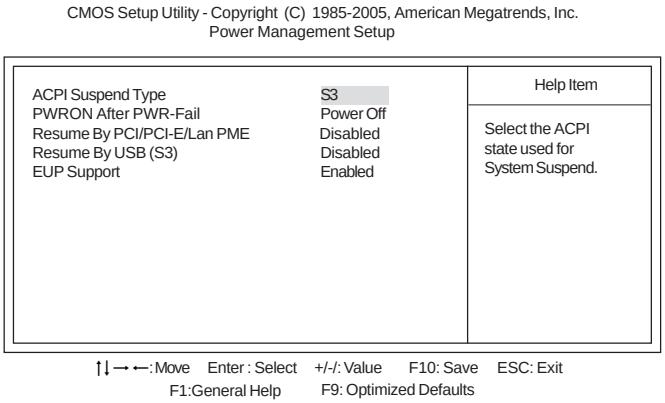
Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

Press <Esc> to return to the main menu setting page.

Power Management Setup

This page sets up some parameters for system power management operation.



ACPI Suspend Type (S3)

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e, the system shuts down with the exception of a refresh current to the system memory.

PWRON After PWR-Fail (Power Off)

This item enables your computer to automatically restart or return to its operating status.

Resume By PCI/PCI-E/Lan PME (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

Resume By USB (S3) (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

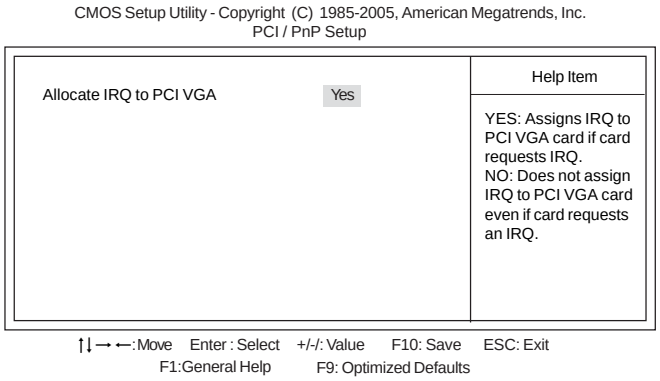
EUP Support (Enabled)

This item allows user to enable or disable EUP support.

Press <Esc> to return to the main menu setting page.

PCI / PnP Setup

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
PCI / PnP Setup
Allocate IRQ to PCI VGA
Yes
Help Item
YES: Assigns IRQ to PCI VGA card if card requests IRQ.
NO: Does not assign IRQ to PCI VGA card even if card requests an IRQ.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

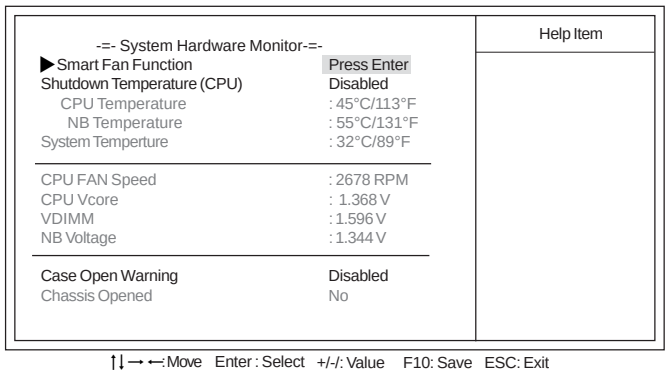
Allocate IRQ to PCI VGA (Yes)

Use this item to select which graphics controller to use as the primary boot devices.

Press <Esc> to return to the main menu setting page.

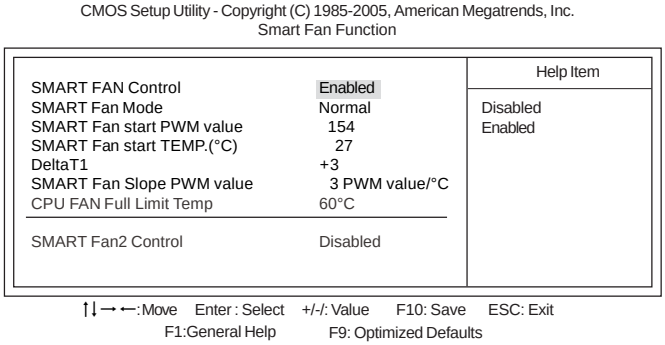
PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.



► Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:

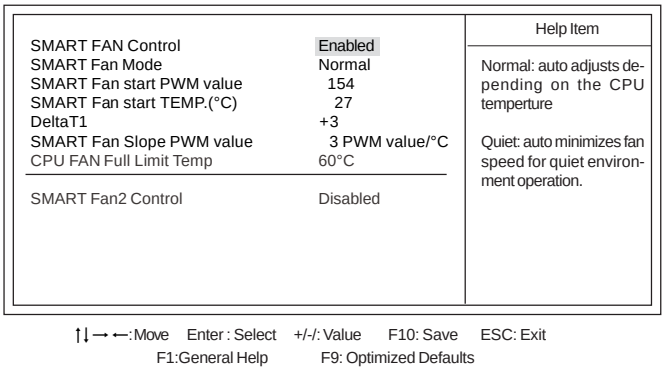

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
SMART FAN Control Enabled
SMART Fan Mode Normal
SMART Fan start PWM value 154
SMART Fan start TEMP.(°C) 27
DeltaT1 +3
SMART Fan Slope PWM value 3 PWM value/°C
CPU FAN Full Limit Temp 60°C
SMART Fan2 Control Disabled
Help Item
Disabled
Enabled
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

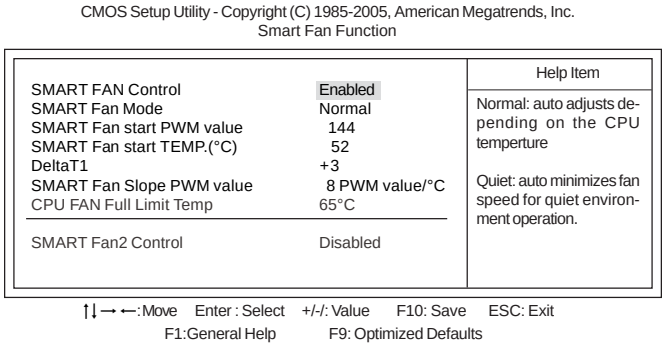
SMART FAN Control (Enabled)

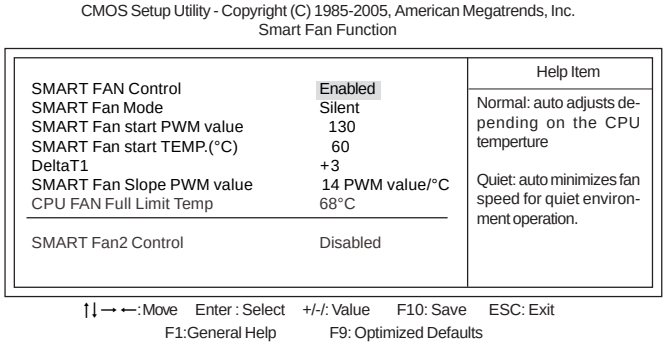
This item allows you to enable/disable the control of the system fan speed by changing the fan voltage.

SMART Fan Mode (Normal)

This item allows you to select the fan mode (Normal, Quiet, Silent, or Manual) for a better operation environment. If you choose Normal mode, the fan speed will be auto adjusted depending on the CPU temperature. If you choose Quite mode, the fan speed will be auto minimized for quiet environment. If you choose Silent mode, the fan speed will be auto restricted to make system more quietly. If you choose Manual mode, the fan speed will be adjust depending on users' parameters.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
SMART FAN Control Enabled
SMART Fan Mode Normal
SMART Fan start PWM value 154
SMART Fan start TEMP.(°C) 27
DeltaT1 +3
SMART Fan Slope PWM value 3 PWM value/°C
CPU FAN Full Limit Temp 60°C
SMART Fan2 Control Disabled
Help Item
Normal: auto adjusts depending on the CPU temperture
Quiet: auto minimizes fan speed for quiet environment operation.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
SMART FAN Control Enabled
SMART Fan Mode Normal
SMART Fan start PWM value 144
SMART Fan start TEMP.(°C) 52
DeltaT1 +3
SMART Fan Slope PWM value 8 PWM value/°C
CPU FAN Full Limit Temp 65°C
SMART Fan2 Control Disabled
Help Item
Normal: auto adjusts depending on the CPU temperture
Quiet: auto minimizes fan speed for quiet environment operation.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
SMART FAN Control Enabled
SMART Fan Mode Silent
SMART Fan start PWM value 130
SMART Fan start TEMP.(°C) 60
DeltaT1 +3
SMART Fan Slope PWM value 14 PWM value/°C
CPU FAN Full Limit Temp 68°C
SMART Fan2 Control Disabled
Help Item
Normal: auto adjusts depending on the CPU temperture
Quiet: auto minimizes fan speed for quiet environment operation.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

Press <Esc> to return to the Smart Fan Function page.

SMART Fan start PWM value (154)

This item is used to set the start PWM value of the smart fan.

SMART Fan start TEMP. (°C) (27)

This item is used to set the start temperature of the smart fan.

DeltaT1 (+3)

This item specifies the range that controls CPU temperature and keeps it from going so high or so low when smart fan works.

SMART Fan Slope PWM value (3 PWM value/°C)

This item is used to set the Slope Select PWM of the smart fan.

CPU FAN Full Limit Temp (60°C)

This item is used to set the limit temperature of the smart fan.

Press <Esc> to return to the PC Health Status page.

Shutdown Temperature (CPU) (Disabled)

Enable you to set the maximum temperature the CPU can reach before powering down.

System Component Characteristics
These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,...etc.

- CPU Temperature
- NB Temperature
- CPU FAN Speed
- CPU Vcore
- VDIMM
- NB Voltage

Press <Esc> to return to the main menu setting page.

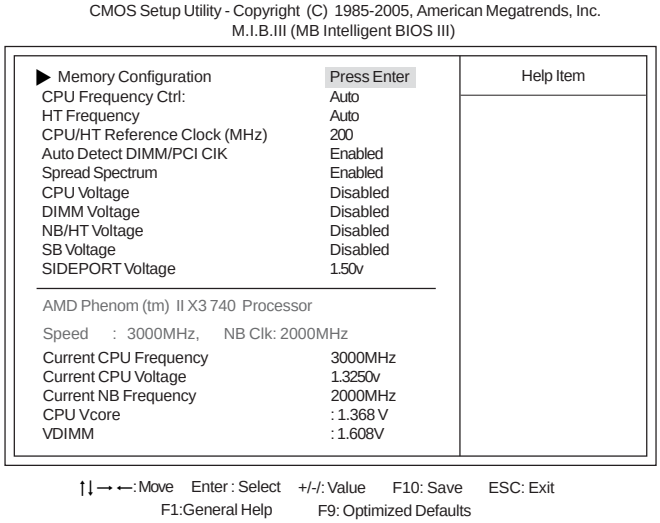
Case Open Warning (Disabled)
This item enables or disables the warning if the case opened up, and the item below indicates the current status of the case

Chassis Opened (No)
This item indicates whether the case has been opened.

Press <Esc> to return to the main menu setting page.

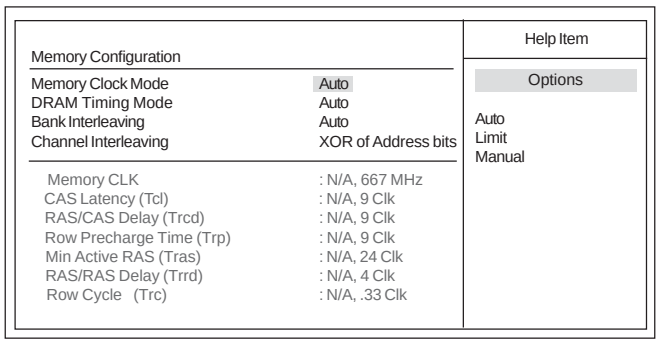
M.I.B. III (MB Intelligent BIOS III)

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.



► Memory Configuration

Scroll to this item and press <Enter> to view the following screen:



Memory Clock Mode (Auto)

This item is used to set the memory clock mode.

DRAM Timing Mode (Auto)

This item enables you to specify the DRAM timing mode to be configured automatically or manually.

Bank Interleaving (Auto)
This item is used to set the bank interleaving.

Channel Interleaving (XOR of Address bits)
This item is used to set the channel interleaving.

Memory CLK (N/A, 667MHz)
This item is used to set the memory clock mode.

CAS Latency (Tcl) (N/A, 9Clk)
This item controls the timing delay (inclockcycles) before the DRAM starts a read command after receiving it.

RAS/CAS Delay (Trcd) (N/A, 9Clk)

This is the amount of time a CAS is performed after a RAS. The lower the better, but some DRAM does not support low figures.

Row Precharge Time (Trp) (N/A, 9Clk)

This item specifies the Row precharge to Active or Auto-Refresh of the same bank.

Min Active RAS (Tras) (N/A, 24 CLK)
This item determins the time RAS takes to read from and write to a memory cell.

RAS/RAS Delay (Trrd) (N/A, 4 CLK)

This item specifies the active-to-active delay of different banks.

Row Cycle (Trc) (N/A, 33 CLK)

Use this item to specify the Row Cycle Time.

Press <Esc> to return to the M.I.B. III (MB Intelligent BIOS III) page.

CPU Frequency Ctrl (Enabled)
Use this item to enable or disable CPU frequency control.

HT Frequency (Auto)

This item enables users to adjust the HT frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

CPU/HT Reference Clock (MHz) (200)
Use this item to set the CPU/HT Reference Clock through clock gen.

Auto Detect DIMM/PCI Clk (Enabled)
When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

Spread Spectrum (Spread All Clocks)
If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

CPU Voltage (Disabled)
This item allows user to adjust CPU voltage when enabled.

DIMM Voltage (Disabled)
This item allows user to adjust DIMM voltage when enabled.

NB Voltage (Disabled)

This item allows user to adjust NB voltage when enabled.

HT Voltage (Disabled)

This item allows user to adjust HT voltage when enabled.

SB Voltage (Disabled)

This item allows user to adjust SB voltage when enabled.

SIDEPORT Voltage (1.5V)

This item allows user to adjust sideport voltage when enabled.

AMD Phenom (tm) II X3 750e Processor Speed (2500MHz)

This is display-only field and displays the information of the CPU installed in your computer.

NB Clk (2000MHz)

This item shows the frequency of Northbridge clock.

Current CPU Frequency (2500MHz)

This item shows the current CPU frequency.

Current CPU Voltage (1.1750v)

This item shows the current CPUvoltage.

Current NB Frequency (2000MHz)

This item shows the current NB frequency.

CPU Vcore (1.200V)

This item displays the current CPU voltage.

VDIMM (1.596V)

This item displays the current DIMM voltage.

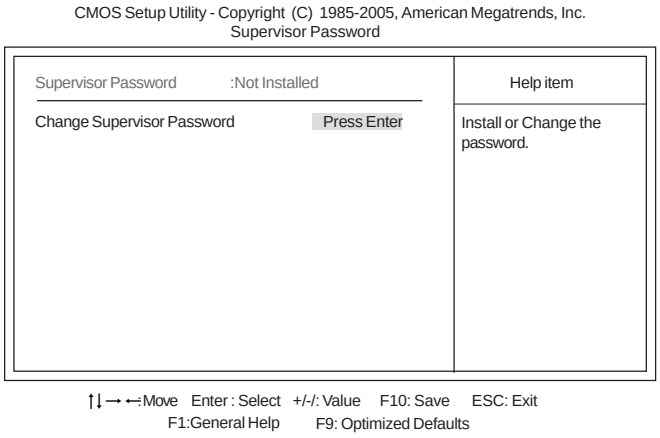
Press <Esc> to return to the main menu setting page.

Load Default Settings

This option opens a dialog box to ask if you are sure to install optimized defaults or not. You select [OK], and then press <Enter>, the Setup Utility loads all default values; or select [Cancel], and then press <Enter>, the Setup Utility does not load default values.

Supervisor Password

This page helps you install or change a password.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Supervisor Password
Supervisor Password :Not Installed
Change Supervisor Password Press Enter
Help item
Install or Change the password.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

Supervisor Password (Not Installed)

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

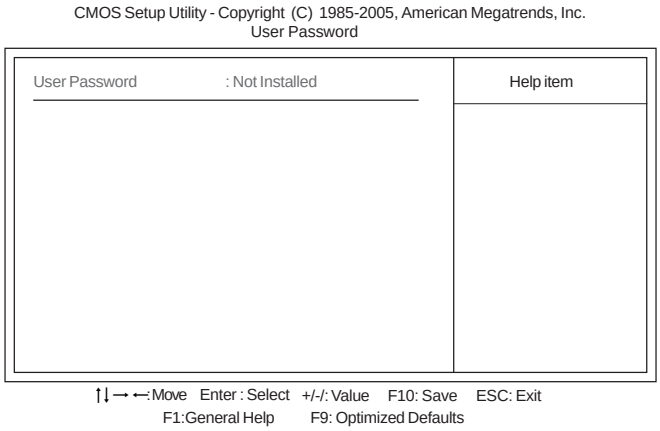
Change Supervisor Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

User Password

This page helps you install or change a password.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
User Password
User Password : Not Installed
Help item
↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

User Password (Not Installed)

This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Press <Esc> to return to the main menu setting page.

Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.

If you have made settings that you do not want to save, use the "Exit Without Saving" item and select [OK] to discard any changes you have made.

Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1. If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
2. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.
5. Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)
6. At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AMINF340.EXE040706.ROM
7. When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

Chapter 4

Using the Motherboard Software

About the Software DVD-ROM/CD-ROM

The support software DVD-ROM/CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT or something similar. These files may contain important information that is not included in this manual.

1. Never try to install all software from folder that is not specified for use with your motherboard.

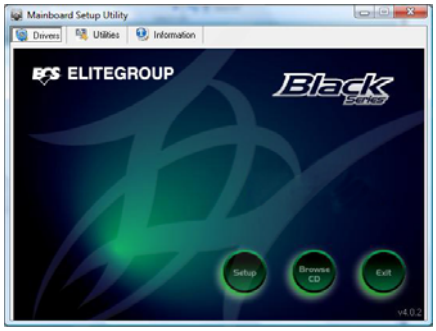
2. The notice of Intel HD Audio Installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center ***"before"*** *installing HD audio driver bundled in the driver disk. Please log on to http://support.microsoft.com/default.aspx?scid=kb;en-us;901105#appliesto for more information.*

Auto-installing under Windows XP/Vista/7

The Auto-install DVD-ROM/CD-ROM makes it easy for you to install the drivers and software for your motherboard.

If the Auto-install DVD-ROM/CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.

The support software DVD-ROM/CD-ROM disc loads automatically under Windows XP/Vista/7. When you insert the DVD-ROM/CD-ROM disc in the DVD-ROM/CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



* For reference only

If the opening screen does not appear; double-click the file "setup.exe" in the root directory.

Drivers

Setup	Click the **Setup** button to run the software installation program. Select from the menu which software you want to install.
Browse CD	The **Browse CD** button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support disk. Before installing the software from Windows Explorer, look for a file named README.TXT or something similar. This file may contain important information to help you install the software correctly. Some software is installed in separate folders for different operating systems. In installing the software, execute a file named SETUP.EXE by double-clicking the file and then following the instructions on the screen.
Exit	The **EXIT** button closes the Auto Setup window.

Utilities

Lists the software utilities that are available on the disk.

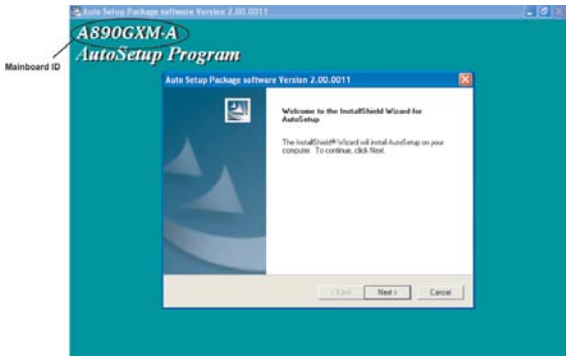
Information

Displays the path for all software and drivers available on the disk.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

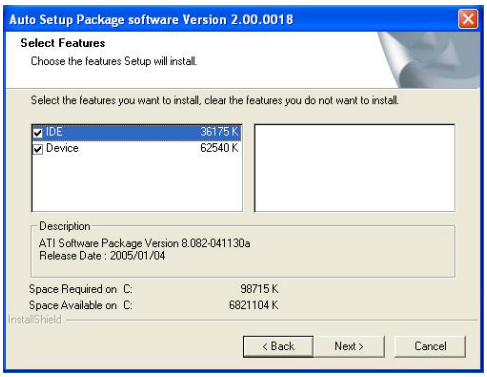
1. *Click **Setup**. The installation program begins:*



The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

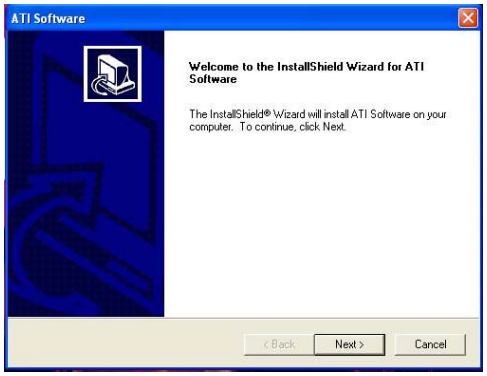
The motherboard identification is located in the upper left-hand corner.

2. *Click **Next.** The following screen appears:*


Auto Setup Package software Version 2.00.0018
Select Features
Choose the features Setup will install.
Select the features you want to install, clear the features you do not want to install.
IDE 36175 K
Device 62540 K
Description
ATI Software Package Version 8.082-041130a
Release Date : 2005/01/04
Space Required on C: 98715 K
Space Available on C: 6821104 K
InstallShield
< Back
Next >
Cancel

3. *Check the box next to the items you want to install. The default options are recommended.*

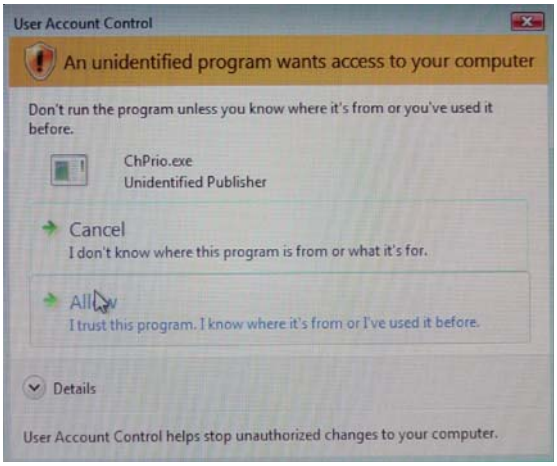
4. *Click **Next** run the Installation Wizard. An item installation screen appears:*


ATI Software
Welcome to the InstallShield Wizard for ATI Software
The InstallShield® Wizard will install ATI Software on your computer. To continue, click Next.
< Back
Next >
Cancel

5. *Follow the instructions on the screen to install the items.*

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Windows Vista/7 will appear below UAC (User Account Control) message after the system restart. You must select "Allow" to install the next driver. Continue this process to complete the drivers installation.


User Account Control
An unidentified program wants access to your computer
Don't run the program unless you know where it's from or you've used it before.
ChPrio.exe
Unidentified Publisher
Cancel
I don't know where this program is from or what it's for.
Allow
I trust this program. I know where it's from or I've used it before.
Details
User Account Control helps stop unauthorized changes to your computer.

Manual Installation

Insert the disk in the DVD-ROM/CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

These software(s) are subject to change at anytime without prior notice. Please refer to the support disk for available software.

Chapter 5
Setting Up AMD SB850 RAID Configuration

Setting Up a bootable RAID Array

This section explains how to configure a bootable AMD RAID array.

Setting Up the BIOS

1 Start your computer, then press Delete to enter the BIOS setup.

The BIOS CMOS Setup Utility screen appears.

Figure 1.1 BIOS CMOS Setup Utility Main Screen

2 Use the arrow keys to select Integrated Peripherals (see Figure 1.1), then press Enter.

The Integrated Peripherals screen (or a screen similar to it) appears.

Figure 1.2 Integrated Peripherals Screen

3 Use the arrow keys to select the SATA Configuration (see Figure 1.2) and globally set SATA Configuration to RAID.

4 Press F10 to save the configuration and exit.
The PC reboots.

5 Enter the RAID BIOS Setup by pressing Ctrl-F when prompted, and proceed to set up the AMD RAID BIOS as described in the next section.

Configuring the AMD RAID BIOS

The AMD RAID BIOS set up lets you choose the RAID type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup:

1 Wait until you see the RAID software prompting you to press Ctrl-F.

The RAID prompt appears as part of the system POST and boot process prior to loading of the OS. You have a few seconds to press Ctrl-F before the screen disappears.

2 Press Ctrl-F.

The Main Menu screen appears (Figure 1.3).

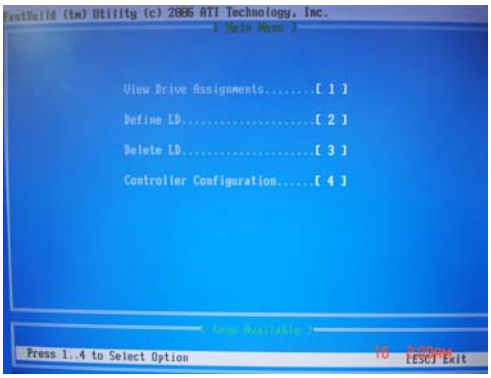

(tm) Utility (c) 2006 ATI Technology, Inc.
[Main Menu]
View Drive Assignments.....[1]
Define LD.....[2]
Delete LD.....[3]
Controller Configuration.....[4]
Press 1..4 to Select Option
[ESC] Exit

Figure 1.3 Main Menu

3 Select [2], then select LD 1 in the following page.

The Define LD Menu screen appears (Figure 1.4).

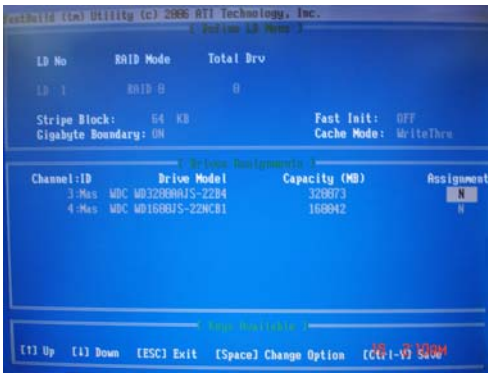


Figure 1.4 Define LD Menu

Using the Define a New Array Screen

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

- **Selecting the RAID Mode**

  By default, this is set to Mirroring. To change to a different RAID mode, press the spacebar until the mode that you want appears in the RAID Mode box—RAID0/1/10/JBOD.

  Note: Not all RAID levels are supported on all platforms.

- **Selecting the Stripe Block Size**

  Stripe block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 64KB, but the values can be 64 KB and 128 KB. When choose RAID 1, the Stripe block size is unchangable.

Assigning the Disks

1. Select the Assignment to Y to designate a free disk to be used as a RAID array disk.

   Figure 1.5 illustrates the Define a New Array screen after two disks have been assigned as RAID 0 array disks.

Figure 1.5 FastBuild Utility—Array Disks Assigned

2. Press Ctrl-Y to save the configuration and exit.

   The Define LD Menu screen appears (Figure 1.6).

Figure 1.6 Define LD Menu

3. Press ESC to exit.

   The Main Menu screen appears (Figure 1.7).

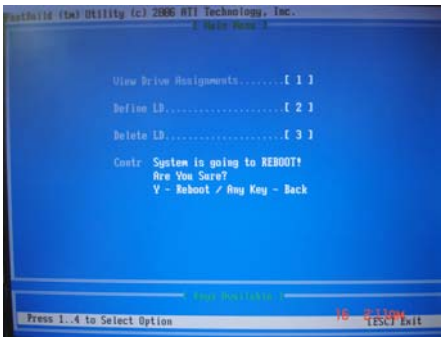

View Drive Assignments.....[1]
Define LD.....[2]
Delete LD.....[3]
System is going to REBOOT!
Are You Sure?
Y - Reboot / Any Key - Back
Press 1...4 to Select Option
[ESC] Exit

Figure 1.7 Main Menu

4 Press Y to reboot.

The following screen appears (Figure 1.8).

ID MODE SIZE TRACK-MAPPING STATUS
1 2+0 RAID 0 31808GM 30661/255/63 Functional
2 ASUS DVD-E818AT
Press (Ctrl-F) to enter FastBuild (tm) Utility...

Figure 1.8

Installing the RAID Drivers

Your system may come with a Windows install CD that already includes AMD RAID drivers. If so, then this section is not relevant.

If that is not the case (or you are trying to install a new version of Windows), then you will need an AMD RAID driver F6 install floppy. Check to see if one came with your system. If not, you can create one by downloading the appropriate driver package and following the steps in this section.

1 Copy all files in "...\RAID\ATI\SB750\Floppy\Win3264" to a floppy disk.

2 After you complete the RAID BIOS setup, boot from the Windows CD.

The Windows Setup program starts.

Figure 1.9

3 Press F6 and wait a few moments for the Windows Setup screen to appear.

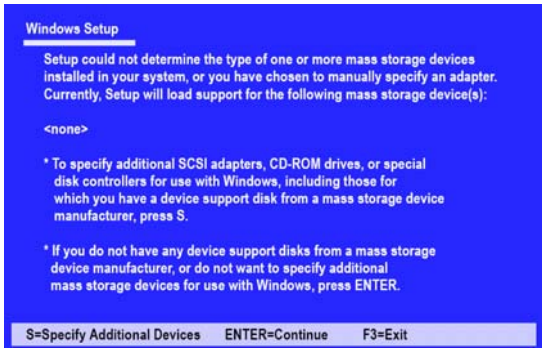

Windows Setup
Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage device(s):
<none>
* To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
* If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.
S=Specify Additional Devices
ENTER=Continue
F3=Exit

Figure 1.10 Windows Setup—Specify Devices

4 Specify the AMD drivers.

a Insert the floppy that has the RAID driver, press S, then press Enter.

The following Windows Setup screen appears:

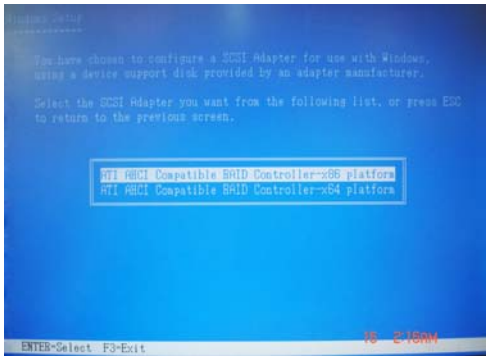

You have chosen to configure a SCSI Adapter for use with Windows,
using a device support disk provided by an adapter manufacturer.
Select the SCSI Adapter you want from the following list, or press ESC
to return to the previous screen.
ATI AHCI Compatible RAID Controller-x86 platform
ATI AHCI Compatible RAID Controller-x64 platform
ENTER=Select F3=Exit

Figure 1.11 Windows Setup—Selected SCSI Adapter

b Select “ATI AHCI Compatible RAID Controller-x86 platform” and press Enter for 32-bit OS or Select “ATI AHCI Compatible RAID Controller-x64 platform” and press Enter for 64-bit OS.

The following Windows Setup screen appears listing both drivers:.

Setup will load support for the following mass storage device(s):
ATI AHCI Compatible RAID Controller-x86 platform
* To specify additional SCSI adapters, CD-ROM drives, or special
disk controllers for use with Windows, including those for
which you have a device support disk from a mass storage device
manufacturer, press S.
* If you do not have any device support disks from a mass storage
device manufacturer, or do not want to specify additional
mass storage devices for use with Windows, press ENTER.
S=Specify Additional Device ENTER=Continue F3=Exit

Figure 1.12 Windows Setup—AMD drives listed

5 Press Enter to continue with Windows XP Installation.

Be sure to leave the floppy disk inserted in the floppy drive until the blue screen portion of Windows XP installation is completed, then take out the floppy.

6 Follow the instructions on how to install Windows XP.

After Windows XP is completely installed, it is recommended that you install the ForceWare software in order to access the FastBuild RAID Management tool.

Note: Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.

Memo

Chapter 6

Setting Up eJIFFY

Introduction

eJIFFY is a fast boot program under Linux. Instead of waiting Windows O.S to start execution, eJIFFY is ready to provide users the instant enjoyment on web browsing, photo review and online chat just within several seconds after boot up.

Note: eJIFFY is ECS ***optional*** feature utility corresponding to the DVD activation and BIOS setup. Please check the hard copy user's guide or product color-box to see if the model has embodded eJIFFY feature. (eJIFFY icon on color-box)

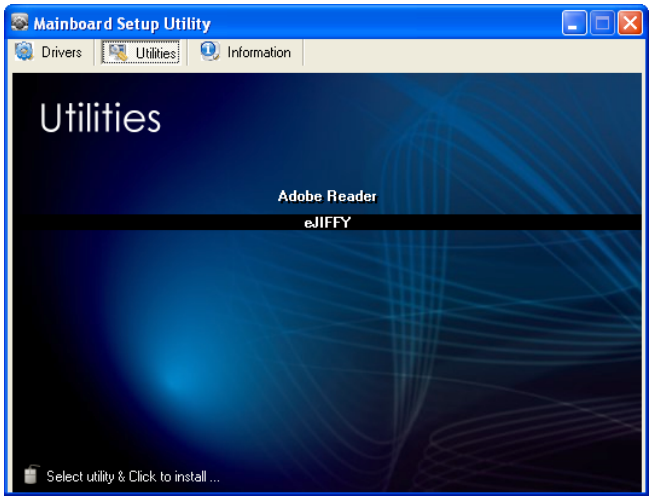
Version: 5.0

Installation and BIOS Setup

DVD Activation

Finish the DVD utility setup, and then set the BIOS to complete eJIFFY activation.

1. Insert ECS software utility DVD and enter below “Utilities” screen. Click eJIFFY feature item to install.



2. Follow the onscreen instructions to finish eJIFFY setup.

Setup - eJIFFY
Welcome to the eJIFFY Setup Wizard
This will install eJIFFY v1.1 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

3. After setting up eJIFFY under Windows, you can switch eJIFFY display/keyboard language from English to your local language. The changes will be applied after rebooting.

Note: The keyboard language selection list offers several more regional keyboard setups to switch with the default English typing. Please refer to the usage FAQ for more tips.

4. Restart your computer after eJIFFY installation. Press <DEL> or click the BIOS Setup button on the post screen to enter the BIOS setup page after boot up.

5. And then enter the *Advanced Setup* page to enable the item *ECS eJIFFY Function*. Press F10 to save the configuration and exit. Restart your computer.

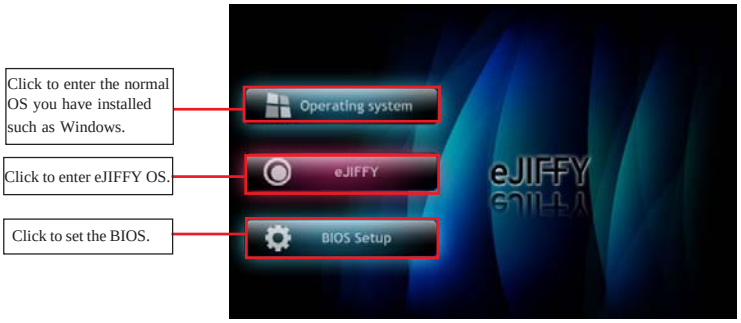
CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Advanced Setup
HT Frequency Auto Auto
AMD C8Q Enabled
Quick Power on Self Test Enabled
Boot Up Numlock Status On
LOGO Display Enabled
APIC Mode Enabled
1st Boot Device ARY01 NVIDIA SPAN 1
2nd Boot Device CD/DVD
3rd Boot Device Removable Dev.
Hard Disk Drives Press Enter
Boot Other Device Yes
ECS eJIFFY Function Enabled
Restore Default Settings No
Help Item
Options
Disabled
Enabled
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit
F1:General Help F9:Load Default Settings

Note: 1. eJIFFY is available in SATA/IDE/AHCI mode. It does not support RAID configuration and the onboard 34-pin floppy drives.

2. Please refer to ECS website for new eJIFFY application updates.

Entering eJIFFY

The post screen appears within several seconds after boot up and it has three buttons on it, Operating system, eJIFFY and BIOS Setup.


Click to enter the normal OS you have installed such as Windows.
Click to enter eJIFFY OS.
Click to set the BIOS.
Operating system
eJIFFY
BIOS Setup
eJIFFY

If you click eJIFFY, the following screen will appear. And If you make no choice it will enter the normal OS automatically after ten seconds.

Feature Icons

The following illustration shows the main feature icons that eJIFFY provides on the menu.

eWeb: Firefox for web browsing/webmail and watching flash video.

ePix: Photo viewing.

ePal: On-line chat tool to use the most popular IMs in the world. (MSN, ICQ, AIM, etc.)

Shows ePal on-line connection status.

Shut Down/Restart: Ends your session and turns off the computer./Ends your session and restart the computer..

Click once to connect the storage disk to your computer. Click for the second time to remove your storage disk safely. (please refer to the FAQ for more usage information.)

Shows the network connection status.

Language Control Panel

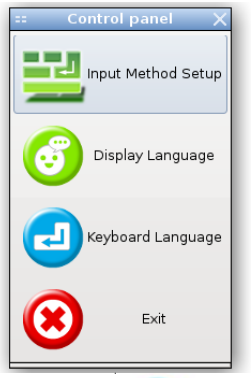
Switch Keyboard Languages

Usage FAQ

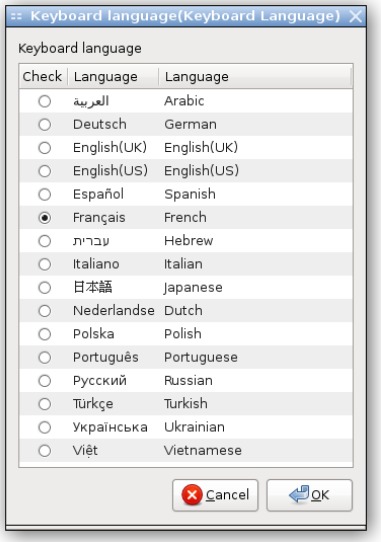
Language Control Panel: Besides setting English as the default interface, eJIFFY offers multi-language displays and keyboard settings for language-switch. Open the language control panel to select a preferable language setting.

Keyboard Language Setup

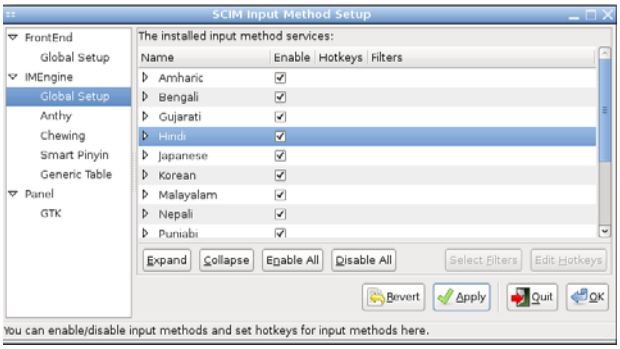
Step1. Click to open the language control panel.



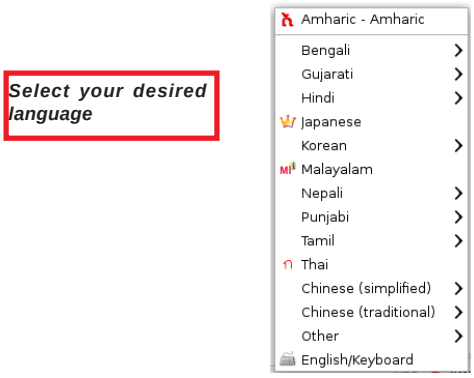
Step 2: Click “Keyboard Language” icon to open the keyboard selection list, which offers several regional keyboard settings besides default English keyboard.
Step 3: Click the selected keyboard language (e.g. French) and press “OK”.



Click to enable all possible language inputs you want to apply, and click "Apply":

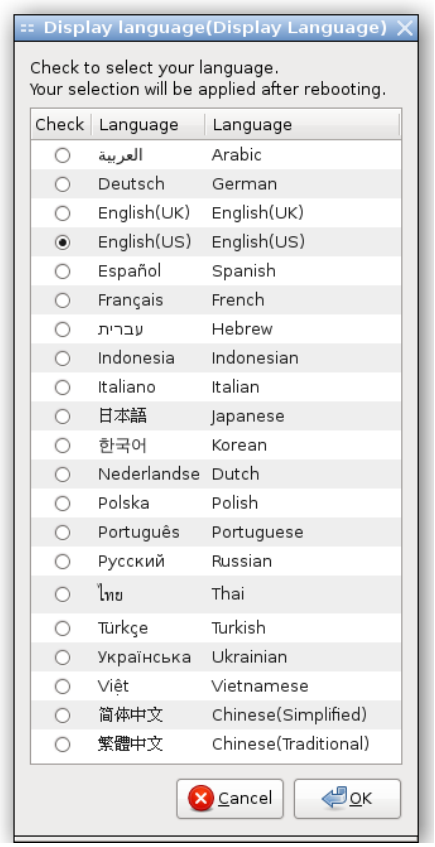


Move your mouse pointer on the text box and press Ctrl+Space. The language bar will then appear as follows.
Click the language bar here.



How to change display language?

Open the Language Control Panel and click to show the display language list. Check your desired display language. Your selected display language will be applied after rebooting.



Note: *Details about eJIFFY please refer to eJIFFY in disk.*

Memo

Chapter 7

Trouble Shooting

Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips.

a) System does not power up and the fans are not running.

1.Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Turn on again to see if the CPU and power supply fans are running.

2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.

3. Check the CPU FAN connector is connected to the motherboard.

4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.

5. Check the 12V power connector is connected to the motherboard.

6. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

b) Power is on, fans are running but there is no display

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.
2. Check the VGA adapter card (if applicable) is inserted properly.
3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
   a. continuous 3 short beeps : memory not detected
   b. 1 long beep and 8 short beeps : VGA not detected

c) The PC suddenly shuts down while booting up.

1. The CPU may experience overheating so it will shutdown to protect itself. Ensure the CPU fan is working properly.
2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.

2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.

3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

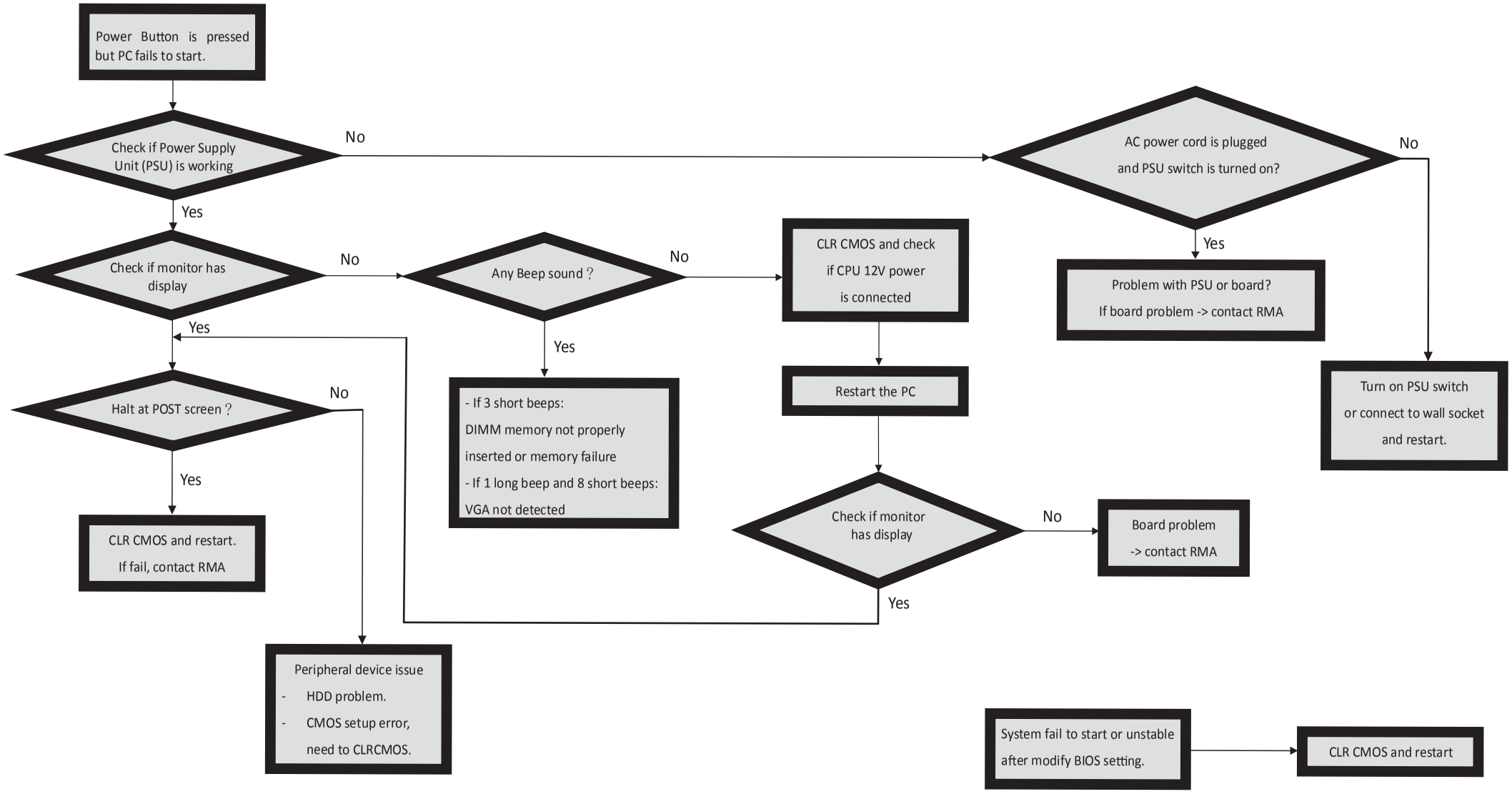
4. Remove the hard drive, optical drive or DDR memory to determine which of these component may be at fault.

Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.
2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.
3. Routinely clean the CPU cooler fan to remove dust and hair.
4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.
5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its lifespan.
6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

Basic Troubleshooting Flowchart


Power Button is pressed but PC fails to start.
Check if Power Supply Unit (PSU) is working
No
AC power cord is plugged and PSU switch is turned on?
No
Yes
Problem with PSU or board? If board problem -> contact RMA
Turn on PSU switch or connect to wall socket and restart.
Yes
Check if monitor has display
No
Any Beep sound ?
No
CLR CMOS and check if CPU 12V power is connected
Yes
- If 3 short beeps: DIMM memory not properly inserted or memory failure
- If 1 long beep and 8 short beeps: VGA not detected
Yes
Restart the PC
Halt at POST screen ?
No
Yes
CLR CMOS and restart. If fail, contact RMA
Check if monitor has display
No
Board problem -> contact RMA
Yes
Peripheral device issue
- HDD problem.
- CMOS setup error, need to CLRCMOS.
System fail to start or unstable after modify BIOS setting.
CLR CMOS and restart

Memo